

Claims

5

V. A long-fibre reinforced thermoplastics material, characterised in that the matrix of the material consists of at least two different thermoplastics, wherein the fibres are wetted essentially by only one of the two thermoplastics materials.

10 2. A material according to Claim 1, characterised in that one of the substances of which the matrix consists has a poor impregnation capability or wetting capability with respect to the fibres which are present in the material.

15 3. A material according to Claim 1 or Claim 2, characterised in that the fibres which are contained in the material consist of glass-, carbon-, aramide- or natural fibres, e.g. flax, hemp or jute, or mixtures of the afore-mentioned fibre materials.

20 4. A material according to one of Claims 1 to 2, characterised in that it contains a material which wets the fibres well, and which is selected from the group consisting of polypropylene, polyamide (polyamide 6, polyamide 66, polyamide 12, polyamide 46), polyethylene, acrylonitrile/butadiene/styrene-copolymers, polyphenylsulphide, polystyrene and polyether-ether ketone.

25 5. A material according to one of Claims 1 to 2, characterised in that the second thermoplastics substance does not wet the fibres directly or to a significant extent.

30 6. A material according to one of Claims 1 to 2, characterised in that the, at least two, thermoplastics materials contained therein are poorly miscible, or immiscible, and form an inhomogeneous mixture.

7. A material according to one of Claims 1 to 2, characterised in that the proportion of fibres in the first thermoplastics material makes up more than 10% by weight.

8. A material according to one of Claims 1 to 2, characterised in that the proportion of a first material which wets the fibres well is between 10 and 40% of the matrix material.
9. A material according to one of Claims 1 to 2, characterised in that the first material is polypropylene and the second material is high-quality polyamide, e.g. PA-66, wherein the proportion of PP is between 10 and 40% and the proportion of PA is accordingly between 60 and 90%.
10. A material according to one of Claims 1 to 2, characterised in that it contains a compatibility component which increases the bonding between the various matrix materials and/or the miscibility thereof.
11. A method for the production of long-fibre reinforced thermoplastics, wherein the fibres are impregnated with a first thermoplastics material, characterised in that the fibres which are already impregnated are encased again, or extruded, or mixed with a second thermoplastics material which is different from the first material.
12. A method according to Claim 11, characterised in that the length of the fibres is on average at least 1 mm, preferably at least 3 or more than 6 mm.
13. A method according to one of Claims 11 or 12, characterised in that following impregnation of the fibres with the first thermoplastics material and following a shaping- and solidification step, the material is broken up into smaller sections, the length of which corresponds in magnitude to the average length of the fibres, wherein these broken up sections are mixed with the second material, possibly heated, and together subjected to a shaping process.
14. A method according to Claim 13, characterised in that the shaping takes place by extrusion, blow moulding, or injection moulding.
15. A method according to Claim 13, characterised in that following the mixing of the first, fibre reinforced material with the second material the mixture is increased to, or just slightly above, the melting point of the higher melting substance for a short time only.